

SESDFBP05VL
ESD Protection Diode With Ultra-Low Capacitance

Revision:A

General Description

The SESDFBP05VL is designed to protect voltage sensitive components that require ultra-low capacitance from ESD and transient voltage events. Excellent clamping capability, low capacitance, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium. Because of its low capacitance, it is suited for use in high frequency designs such as USB 2.0 high speed and antenna line applications.

Features

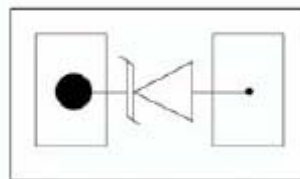
- Ultra Low Capacitance 0.5 pF
- Low Clamping Voltage
- Small Body Outline Dimensions:
- 0.039" x 0.024" (1.00 mm x 0.60 mm)
- Low Body Height: 0.016" (0.4 mm)
- Stand-off Voltage: 5 V
- Low Leakage
- Response Time is Typically < 1.0 ns
- IEC61000-4-2 Level 4 ESD Protection
- This is a Pb-Free Device

Complies with the following standards
IEC61000-4-2

Level 4 15 kV (air discharge)
8 kV (contact discharge)

MIL STD 883E - Method 3015-7 Class 3
25 kV HBM (Human Body Model)

Functional diagram



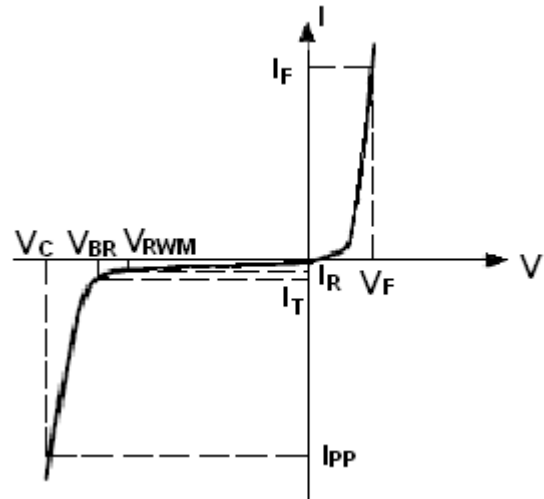
WBFBP-02C

Maximum Ratings

Parameter	Symbol	Value	Unit
IEC 61000-4-2 (ESD) Contact		8	kV
ESD Voltage	Per Human Body Model	25	kV
	Per Machine Model	400	V
Peak Pulse Power ($t_p = 8/20\mu s$) @ $T_A = 25^\circ C$	P_D	100	W
Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$
Lead Solder Temperature – Maximum (10 Second Duration)	T_L	260	$^\circ C$

Electrical Parameter

Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
I_T	Test Current
V_{BR}	Breakdown Voltage @ I_T
I_F	Forward Current
V_F	Forward Voltage @ I_F



Electrical Characteristics ($T_A=25^\circ\text{C}$ unless otherwise noted, $V_F=0.9\text{V Max.}$ @ $I_F=10\text{mA}$ for all types)

Part Numbers	V_{BR}	I_T	V_{RWM}	I_R	V_F	I_F	C
	Min.				Max.		Typ. (Note1)
	V				V		pF
SESDFBP05VL	5.8	1.0	3.3	1	1.0	10	0.5

1. Capacitance is measured at $f=1\text{MHz}$, $V_R=0\text{V}$, $T_A=25^\circ\text{C}$.
2. V_{BR} is measured with a pulse test current I_T at an ambient temperature of 25°C .
3. For test procedure see Figures 3 and 4 and Application Note AND8307/D.

Typical Characteristics

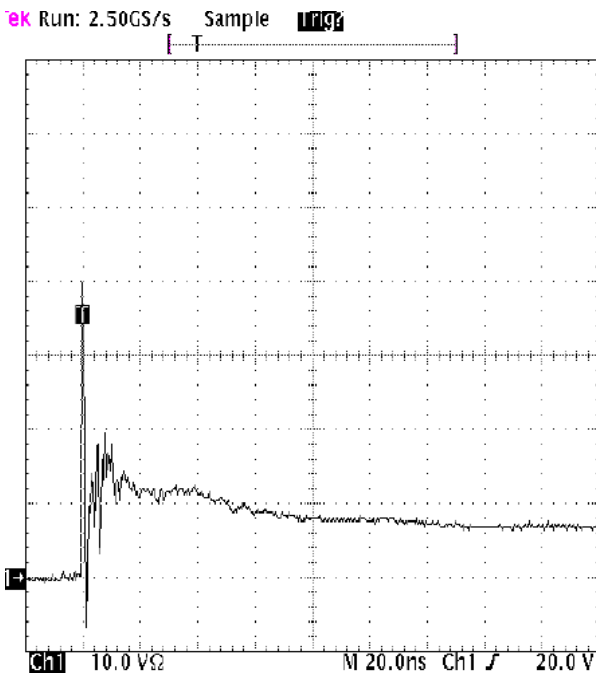


Fig 1. Positive 8kV contact per IEC
61000-4-2-SESDFBP05VL

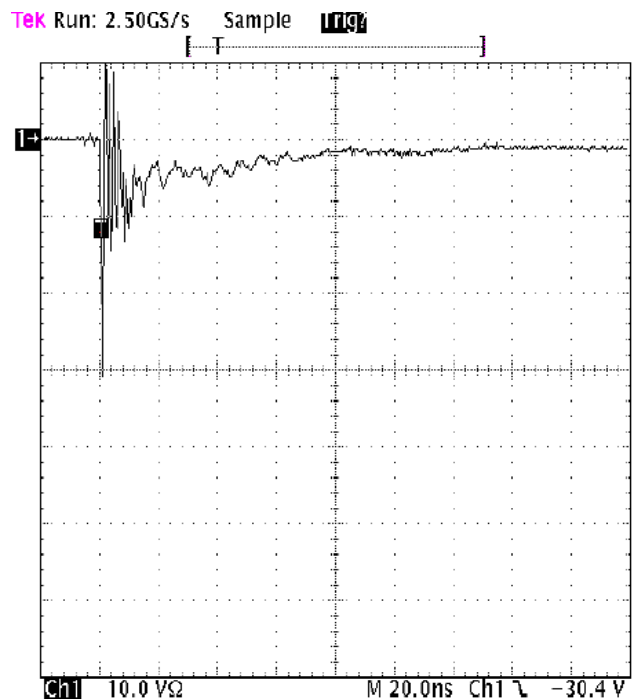


Fig 2. Negative 8kV contact per IEC
61000-4-2-SESDFBP05VL

IEC 61000-4-2 Spec.

Level	Test Voltage (kV)	First Peak Current (A)	Current at 30 ns (A)	Current at 60 ns (A)
1	2	7.5	4	2
2	4	15	8	4
3	6	22.5	12	6
4	8	30	16	8

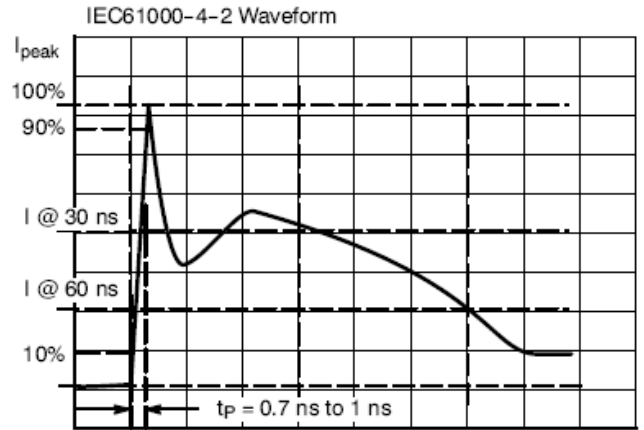


Figure 3. IEC61000-4-2 Spec

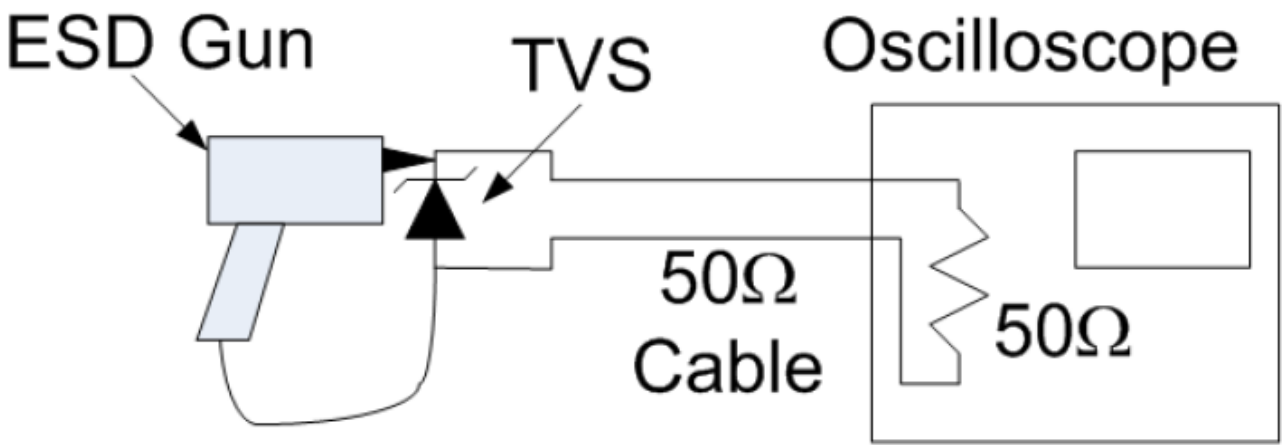
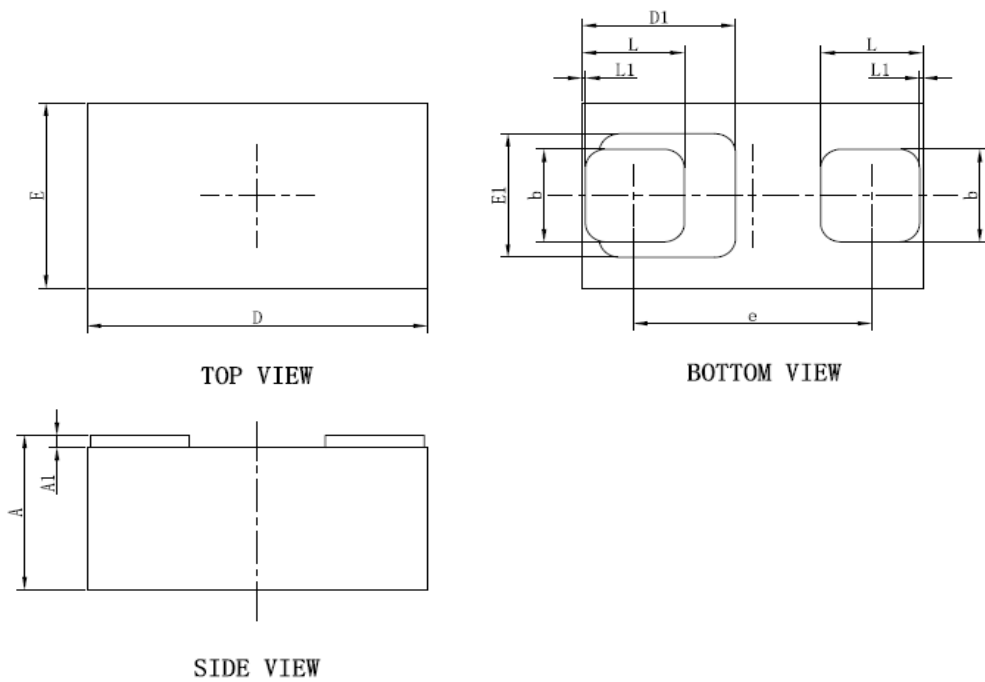


Figure 4. Diagram of ESD Test Setup

WBFBP-02C Mechanical Data



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.450	0.550	0.018	0.022
A1	0.010	0.070	0.000	0.003
D	0.950	1.050	0.037	0.041
E	0.550	0.650	0.022	0.026
D1	0.450REF.		0.018REF.	
E1	0.400REF.		0.016REF.	
b	0.275	0.325	0.011	0.013
e	0.675	0.725	0.027	0.029
L	0.275	0.325	0.011	0.013
L1	0.010REF.		0.000REF.	

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